APRIL 1949

FIREMEN

FIFTY-FOURTH YEAR • NATIONAL FIRE PROTECTION ASSOCIATION

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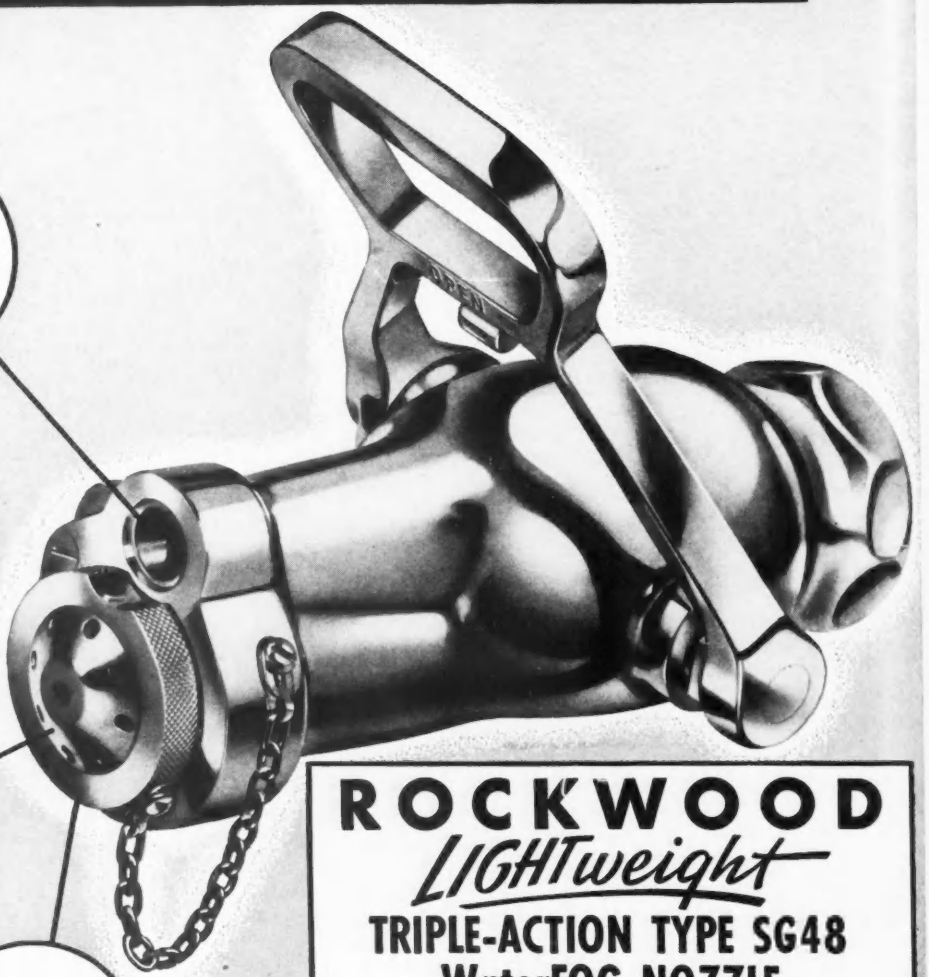
TRIPLE PROTECTION against FIRE



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3. *Low Velocity* WaterFOG from LIGHTweight Extension Applicator. Fog tip is removed and Applicator inserted.

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Here is a fire fighting tool that gives *triple-protection* against fires in ordinary combustibles and flammable liquids — Rockwood LIGHTweight Triple-Action SG-48 WaterFOG Nozzle.

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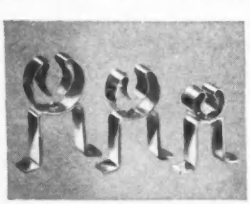

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Specialists in Fire Protection Engineering, Equipment and Installation since 1907

THE WEST CHICAGO PRESS

WEST CHICAGO, ILLINOIS, JANUARY 27, 1949

FIREMEN WIN HIGH PRAISE FOR GIESE FIRE WORK

Potential "Blow" Brought Under Control Friday

An insurance underwriter and an insurance adjuster, one of them on the spot with the first firemen, have accorded highest praise to the West Chicago volunteer fire department for the way the firemen subdued a potentially calamitous fire in the Arthur E. Giese home at 340 Clayton last Friday evening.

The fire, which started and made great headway in the house when all the occupants were absent, was a potential "blow"; that is, it had created and enclosed in the house great quantities of gasses which could at any minute hove blown the house apart and some of the surrounding homes with it. Added to the gas created by the fire was natural gas, released when the gas meter in the basement melted in the intense heat.

The fire department, called to the scene shortly after 10 P.M., extinguished all flames in a few minutes with its fog equipment. It did so with no water damage. In a fire as dramatic as this was, that may seem like a trifling aside, but it was one of the points which drew highest praise from the insurance men.

There was a gaping hole in the living room, where the fire had burned through from the basement, but a dining room table three feet away did not have a drop of water on it when firemen inspected the room after putting out the flames.

The fire was discovered by Mrs. Giese as she returned from a movie about 10 o'clock. She attempted to enter the house but was driven from the front door by the terrific heat.

She turned in the alarm from a neighbor's home, and the firemen were soon at the scene.

They discovered the source of the fire, which started near the coal bin, burned away a partition into the bin, and then climbed upward and spread out across the basement joists.

Intense heat radiating from the walls led firemen to believe fire was burning inside the partitions, but they found none, all flames having been extinguished in the first few minutes with the two fog nozzles. The building had fire stops.

Adjusters fix the damage figure at around $5,000, most of it the direct cause of heat, rather than direct fire, and none of it from water.

Insurance underwriter ***** ***** on the scene with initial firemen, called the department's work "the best he had ever seen in a small city, both for equipment and the knowledge of how to handle it" as displayed by the firemen. He said when he arrived at the fire he was ready to call it a tota l loss.

Excerpt from a newspaper account of a recent fire in W. Chicago, Illinois. Not a single word has been changed.

HERE'S A STORY of how a John Bean High-Pressure Fog Fire Fighter brought a potential "blow" under control, extinguishing all the flames within a few minutes, *and did so with no water damage!*

Many similar authentic stories of Bean Fire Fighter performance are to be found in our files. Complete details will be furnished on request.

The West Chicago Fire Department's pride and joy—this Bean High-Pressure Fog Fire Fighter—carries its own water supply, and has two guns of 30 gallons each with 850 lbs. pressure at the pump. Delivered complete with accessories.

BEAN *Original* **HIGH-PRESSURE FOG FIRE FIGHTER**

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BUILDERS OF BEAN HIGH-PRESSURE PUMPS FOR OVER 60 YEARS

This MACK gives Munster

"THE BEST IN FIRE PROTECTION"

. . . says Chief Vander Vaart — Munster, Indiana, F. D.

"Munster, one of the fastest-growing communities in the country, was in need of fire apparatus. Accordingly, a very stringent and far-seeing set of specifications was presented by this department. Problems of present and future needs were not underestimated. A Mack was our resultant decision.

We have recently received delivery of our new Mack Type 85, 750-gallon triple combination pumper -- and can boast of this apparatus more than fulfilling our expectations. Its quality is superb in every detail. The powerful 707 cubic inch displacement engine is commensurate with the highly efficient pressure-volume centrifugal pump.

Now the people of Munster, our very able Board of Trustees and the Fire Department are assured of the best in fire protection."

Chief Vander Vaart's experience reflects that of more than 1,000 communities where Macks are regarded as the finest in fire apparatus. You'll give your community the best in protection, too, when you *Modernize with Macks.*

Mack

FIRE APPARATUS

Mack Manufacturing Corporation

FIRE APPARATUS DIVISION

Long Island City 1, New York

Factory branches and dealers for parts and service in all principal cities. In Canada, Mack Trucks of Canada, Ltd.

TRIPLE COMBINATION PUMPERS — 500 TO 2000 GALLONS . . . SQUAD WAGONS . . . CITY SERVICE AND QUADRUPLE COMBINATION LADDER TRUCKS

Firemen

Volume 16 Number 4

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THE cover photo (*Acme*) shows a fire in the Sun Tent Luebbert Company in San Francisco, on February 9th. This unsprinklered three-story brick, plank on timber, factory was used to manufacture canvas goods and camping equipment. A neighbor gave the alarm at 5:21 P.M., only 23 minutes after the plant treasurer had locked up for the night. When firemen arrived fire was burning through the roof as shown, and was extending from the windows on the second and third floors. The fire department has been unable to find the cause of the extremely rapid spread of fire.

The photo gives a remarkable view of the fire department getting into action at this fire. Note the short ladder placed to the fire escape to facilitate rescue if needed, the long extension ladder to the roof braced by a straight ladder, the aerial being raised, the ladders covered by a hose stream, the squad crew with oxygen masks reporting for duty. Loss was unofficially placed at about $200,000.

IN the past months there have been five individual fires that snuffed out from seven to eleven lives each — a total of forty-five deaths from five fires. There have been perhaps a thousand persons whose lives have been cut short by flames since you read FIREMEN last month.

Seven firemen died in this Charleston, W. Va. fire.

THE tragedy that touched the hearts of firemen most deeply was the death of seven fire fighters in the basement of a 10 cent store at Charleston, West Virginia. The fire was discovered by a policeman at 4 A.M. There was no sprinkler or fire detection equipment where the fire began. The heavily loaded floor collapsed trapping firemen working in the basement and first floor killing seven and injuring thirteen. One man died trying to rescue the trapped men.

This fire is another indication of the hidden dangers faced by firemen, paid and volunteer, in the task of protecting the lives and property of the public.

ANOTHER of the recent tragic fires was that which cost the lives of nine young men in a dormitory of fashionable Kenyon College in Gambier, Ohio, on February 27. This dormitory, said to have been the "oldest Gothic collegiate structure in the country" had been in use for 122 years. It is reported that President Rutherford B. Hayes once resided in this building.

Thus through all these years there should have been ample opportunity to profit by the experience of other college dormitory fire tragedies which certainly have claimed the attention of the general public. It would seem that there was adequate opportunity to apply such safeguards as automatic fire detection and automatic sprinkler equipment which have been available for many many years.

The NFPA Building Exits Code, first issued in 1927, tells of life safeguards for buildings of public assembly. But all too often ears have been stopped to pleas of fire safety because it may cost a few dollars and institutions always have had a hard time to make ends meet.

DUST EXPLOSIONS

What Firemen Should Know About Them

By Hylton R. Brown

Engineer, Bureau of Mines, U. S. Department of Interior; Chairman, NFPA Committee on Dust Explosion Hazards; Member, NFPA Board of Directors

MOST dust explosions occur during the operation of industrial plants; and, if such explosions have been severe, the firemen who answer the alarms are not generally exposed to other than the usual hazards associated with rescue and recovery operations or fire fighting in wrecked or damaged buildings. In cases where only a minor explosion has occurred or only a small fire is burning in a plant in which finely divided combustible material is manufactured, processed, or handled, firemen must be alert to avoid the hazards of dust explosions that may occur during fire-extinguishing operations. To provide the maximum protection for himself and others against such hazards, every fireman should be familiar with the explosive characteristics of different types of dust, the conditions under which ignitions may occur, and the behavior of dust explosions.

Special instructions and demonstrations on certain phases of dust-explosion prevention have been included in the programs of many firemen's training schools and the questions raised at these meetings indicate that firemen have a keen interest in the research work on dust explosions as well as the practical problems that they may encounter in their work. In this article attention is called to the results of recent research on dust-explosion prevention, and some of the usual as well as unusual hazards associated with fire fighting in dusty industries.

Fighting fire following a dust explosion in a large plant.

AT one time only carbonaceous dusts, such as coal, grain, starch, sugar, and wood, were considered capable of forming explosive mixtures with air, but laboratory tests have shown that many other materials in finely divided form are hazardous. Metal powders, such as zirconium, magnesium, aluminum, and titanium and many of the powdered materials used in the plastics industry, are now considered more hazardous than the carbonaceous dusts with well-known explosive properties. Investigators believe that dust explosions can occur wherever material that will burn or oxidize readily is reduced to powdered form and wherever such dust or powder is handled or processed in connection with some manufacturing operation.

It is estimated that dust-explosion hazards exist in over 28,000 establishments in the United States. This estimate includes all types of grinding operations, flour and feed mills, coal crushers, sugar and cocoa pulverizers, woodworking plants, driers handling finely divided combustible materials, bolting, sifting or screening processes, mixing and blending operations, and the numerous handling or conveying steps in modern industrial plants.

Through regular inspections of the manufacturing establishments into which they may be called to fight a fire, firemen should become familiar with the locations where dust or powdered material is produced or stored or where dust accumulations on floors and particularly on overhead beams and ledges could be disturbed or dispersed to form explosive dust clouds. Explosions have occurred when such accumulations were dislodged by heavy hose streams during fire-fighting and the dust settled onto flames or hot embers below.

Extent of Dust-Explosion Losses

EXAMINATION of the dust-explosion-loss record indicates to some degree the frequency of such explosions and the severity of the hazard to which firemen may be exposed. In 176 dust explosions reported in the United States for 1941–47, inclusive, 91 lives were lost and the total property loss of more than $27,000,000 or an average annual loss of $3,858,160 during those seven years, far exceeded that during any previous similar period for which information is available. The record for 1948 is not complete, but available reports show that dust explosions caused the loss of 22 lives, injury to 10 persons, and property loss of nearly $3,500,000. It is quite likely that many small explosions and dust ignitions have not been reported, but a tabulation of available figures shows that the losses have been growing since 1940.

Increasing losses from dust explosions challenge fire prevention and insurance organizations, and greater efforts to control the hazard are being planned. In this work firemen can render unusually effective service by calling attention during plant inspections to dangerous dust conditions. If such conditions can be remedied, plant owners or operators will enjoy the assurance of increased protection against losses from explosion, employees will be assured of safer working conditions, and firemen will know that the hazards to which they are exposed if fire should occur have been reduced.

How Dust Explosions Occur

TO produce a dust explosion, it is necessary to have a cloud of dust in suspension in air within certain limits of concentration and a source of ignition. Laboratory tests have shown that, for many of the carbonaceous dusts, a cloud having a concentration of 0.05 ounce per cubic foot is within the explosive range and usually a spark or a heated surface at a

temperature of 600°C. (1080°F.) is sufficient to ignite the dust and air mixture. For some of the more explosive metal dusts and certain fine powders used in the plastics industry only 0.02 ounce of dust uniformly dispersed in a cubic foot of air will form an explosive mixture and a spark or heated surface at a temperature of 500°C. (900°F.) will ignite it. In all industrial plants handling finely divided combustible material there are many possible combinations of circumstances that may produce the conditions necessary for an explosion.

Although it is desirable for a fireman to have such basic knowledge of dust explosions if called upon to suggest control measures when making a plant inspection, it is much more important to understand the conditions under which explosions may occur during fire fighting.

Explosions During Fire Fighting

A NUMBER of disastrous dust explosions that have occurred during the progress of fires in industrial plants have brought death or injury to firemen. In general, these explosions have occurred under somewhat similar conditions, which can be described briefly as follows:

1. Ignition of dust clouds formed when attempts were made to empty bins of powdered material in which a fire was burning by allowing the contents to flow through openings in the bottom of the bin.
2. Ignition of dust clouds formed when floors burned through or collapsed and dropped quantities of fine powder or dust onto the flames below.
3. Ignition of dust clouds formed when hose streams dislodged or dispersed accumulations of dust on floors and ledges.
4. Ignition of dust clouds formed within shafts, wells, elevator legs, or other vertical enclosures when attempts to cut openings into such enclosures or the impact of heavy hose streams on the enclosure wall dislodged accumulations of dust.

A few examples taken from explosion reports will illustrate the necessity of adopting certain safe practices when fighting fires in plants where dust-explosion hazards may exist.

In one case firemen answered a call from a woodworking plant and found that fire had flashed through the air duct used to transport shavings and sawdust to the boiler house and ignited the material accumulated there in a large steel storage tank. The firemen attempted to draw off the contents of this tank and wet it down with a hose stream as it fell to the ground. The dust cloud formed in this way was ignited when the burning material fell from the tank, and the resulting explosion or flash fire enveloped and seriously burned several of the firemen.

In another explosion six firemen lost their lives and six others were seriously burned when they attempted to draw off the contents of an overhead dust-storage bin in a woodworking plant. In this instance, the fire in the bin was believed to have been extinguished with hose streams; but apparently glowing embers remained, and some of the dust was dry enough to form a cloud that ignited when the bin discharge valve was opened and the contents were allowed to fall to the floor 15 feet below.

A serious explosion occurred in an industrial plant while firemen were fighting a fire that involved a large part of the building. An investigation disclosed that the fire had been burning for about 30 minutes when the floor under some bins containing powdered material collapsed and the resulting dust cloud was ignited. Eighteen men were caught in this explosion and flash fire, and four suffered fatal injuries.

During a fire in a grain-handling plant firemen endeavored to gain access to a fire in a metal elevator leg by opening both the top and the bottom. Dust accumulations at the top were loosened; and, as the dust cloud settled onto the flames, an explosion flashed through the elevator leg and enveloped the groups of men who had been stationed on other floors.

Fire fighting facilities in rural communities may be inadequate to cope with fires in plants where dust explosions can quickly spread the flames to all parts of the structure and into adjoining buildings.

One of the early dust explosions recorded in this country occurred in a cork-grinding plant when firemen, who were fighting a fire in the plant, directed a hose stream into a pile of cork dust. The dust thrown into suspension, was quickly ignited, and the resultant explosion carried fire to all parts of the building.

Protection Against Explosions

THE precautionary measures that can and should be adopted by firemen to protect themselves against dust explosions during fire-fighting are relatively simple. Prevention is the best kind of protection, and firemen should make regular systematic inspections of any plants in their area where combustible dusts are created during operating processes. The attention of the management should be called to any operations where suitable dust-collecting or dust-removal equipment would eliminate or reduce a dust-explosion hazard during normal operation or during fire fighting. Good housekeeping is essential, and accumulations of dust on overhead ledges should not be tolerated.

If fire occurs inside a bin containing combustible dust or powder, it is preferable to attempt to extinguish the burning material without removing or disturbing it. In some instances bins can be emptied through screw conveyors or spouts which may contain or form a seal to prevent the passage of blazing material, but any operation that creates a dust cloud should be avoided when fire or other sources of ignition are known to be present.

When it becomes necessary to fight a fire where quantities of dust are present, particularly in loose piles, it is advisable to use a spray instead of a solid hose stream. By all means avoid directing a heavy stream into a pile of dust or where it will disperse accumulations of dust on beams or ledges. One old fire captain who served his time before spray nozzles became common equipment had a good idea when he told his men that the safe way to fight a fire in a dusty mills was to hit the ceiling with the hose stream and let it rain on the fire.

FIREMEN who wish to make a more technical study of the causes and characteristics of dust explosions will find available numerous publications containing information on ignition temperatures, relative flammability, ease of ignition, limits of explosive concentration, maximum pressure, and rates of pressure rise produced following ignition. A number of safety codes containing recommendations for the prevention of dust explosions and protection in different types of industry also are available. Many of the recommendations in these codes that were prepared by the Dust Explosion Hazards

(*Continued on page 17*)

Chicago's Squad Companies

Anthony J. Mullaney

Chief Fire Marshal, Chicago Fire Department (Member NFPA)

THE trend toward establishment of auxiliary squads to augment the fire departments of cities is the result of logical planning and far-sighted thinking that prevailed through the years by leaders of various fire departments. In 1913 the Chicago Fire Department organized and placed in service three squad companies which before the end of that year, justified their value as auxiliary units both in fire duty and in general emergency service to the public.

As a result of the proven value of these auxiliary squads, the City of Chicago with its 212 square miles and almost four million people is now being serviced by twelve squads with the possibility of more being added in the near future.

The auxiliary squad has proven itself to be just as essential to fire fighting as the engine company or hook and ladder company. This is indicated by the continued extension of the "still" and box alarm response districts of Chicago's squad companies.

During the year 1948, the twelve auxiliary squads in the City of Chicago performed the following fire duty:

Fire responses, 16,185
Hours at fires, 4,043
Miles travelled to fires, 47,448

In addition to the above fire duty, these squads perform various activities known as "special duties" connected with the troubles and misfortunes to which people are subjected. These special duty calls involve resuscitation, removal to hospitals of victims of accidents, defective refrigeration systems, thawing of hydrants, hose and apparatus, first aid to victims of burns, fractures and shock, and the operation of iron lungs.

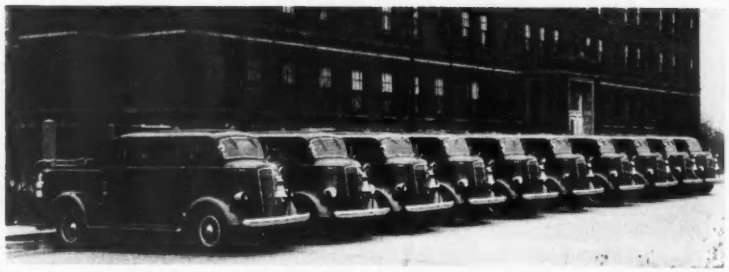
The following will give the number of special duty calls attended by the twelve squads of this department during 1948:

Special duty responses, 13,882
Hours worked, 8, 011
Miles travelled, 58,710

The accompanying form lists the various types of duty performed by squad companies.

There are two officers and fourteen firemen assigned to each squad company, divided into two shifts working tours of twenty-four hours out of each forty-eight hours. After each fourth tour of duty a leave of seventy-two hours is allowed.

The following list shows the equipment carried on the auxiliary squads of the Chicago Fire Department. This equipment, where possible, is located in the same place on all squads so that members of any other company will be able to find any given article he is sent after without the loss of time. The members assigned to "auxiliary squads" must be familiar with and be able to use all appliances, tools and equipment carried on the apparatus, plus a thorough knowledge of "first aid."



A fleet of ten Mack squad trucks in service with the Chicago Fire Department. These trucks are equipped with turret nozzles capable of delivering 1200 gpm at 130 pounds pressure. Take-off connections are provided so that when turret streams have brought a large fire under control, hand lines can be advanced from the squad trucks without disconnecting the lines in operation.

SQUAD COMPANY FIRE AND SPECIAL DUTY PERFORMANCE RECORD FOR THE YEAR 1948

Incidents	Number of Runs	Mileage	Working Time
Fires	16,185	47,448	4043:25
Inhalators	11,696	50,303	6261:10
Refrigerators	1,275	4,909	502:40
Gas leaks	100	362	63:05
Street accidents	322	1,156	122:00
Accidents in buildings	96	345	275:50
R.R., "L" and subway accidents	23	98	15:40
Removal of trees, etc.	32	100	20:50
Removal of stacks, signs and copings	5	11	2:00
Building collapse	11	35	20:00
Towing jeeps, apparatus, etc.	62	324	62:00
Hauling tires and hose	47	195	23:10
Drill School relief	88	432	562:40
Miscellaneous	125	440	79:34
	30,067	106,158	12054:40

SQUAD EQUIPMENT

E & J resuscitator	Block and tackle	2½" x 3½" increaser
E & J bottles	100 ft. ¾-inch rope	3½" x 2½" reducer
H & H inhalators	100 ft. 1-inch rope	4" x 2½" reducer
H & H bottles	Stone jack	4¾" x 2½" reducer
McCaa hour masks	Screw jack	Double male
McCaa bottles	Hydraulic jack	Double female
Scott 1 hour masks	Wire cutter — gloves	2½" cap spray
Scott bottles	Gas shut-off wrench — small	Offset curved tip
"All Service" masks	Gas shut-off wrench — large	1¼" basement pipe
Life bag	"Du Gas"	Large fog basement pipe
Arm & leg splints	"Foamite"	2½-inch fog
Stretcher	Turret tips, 1½", 1¾", 2"	Adjustable fog with shut-off
First aid kit	Adapter for fog	Portable pipe 1¼" x 1⅜" tip
Blankets	1¼" shut-off pipe	Bumper jacks
Tannic acid	1¼" street pipe	Rail clamps
Acetylene cutter tips	¾" x ⅜" shut-off pipe	Bull points and chisels

Soap and plugs
Pick mauls
Sledge hammers
Chicago bar
Crow bar
Pinch bar
Patrol bar
Handy bar
20 ft. extension ladder
10 ft. special roof ladder
Pike poles — 6 ft.
Pike poles — 8 ft.
Pike poles — 10 ft.
Fire axes
Truckmen's belts
Spanner wrenches
Hydrant wrenches
Stillson wrench
Monkey wrench
Wall hook
Hose stick
Hoseroller
Hose clamp
Hand pumps
Electric hand light
Bull point holder
Star drill
Cross cut saw
Rip saw
Hack saw
Extra blades
Brooms
Hay hooks
Shovels
Metal sash hook
Wrecking hook and chain
Tow chain
Grappling hook
Iron rollers
Wooden blocks
Thawing device
Bilge pump
Jeep battery cable
Grindstone
Extension cord
Apparatus cover
Extra tire
Mackey pipe

Meeting of NFPA Committee on Fire Department Equipment

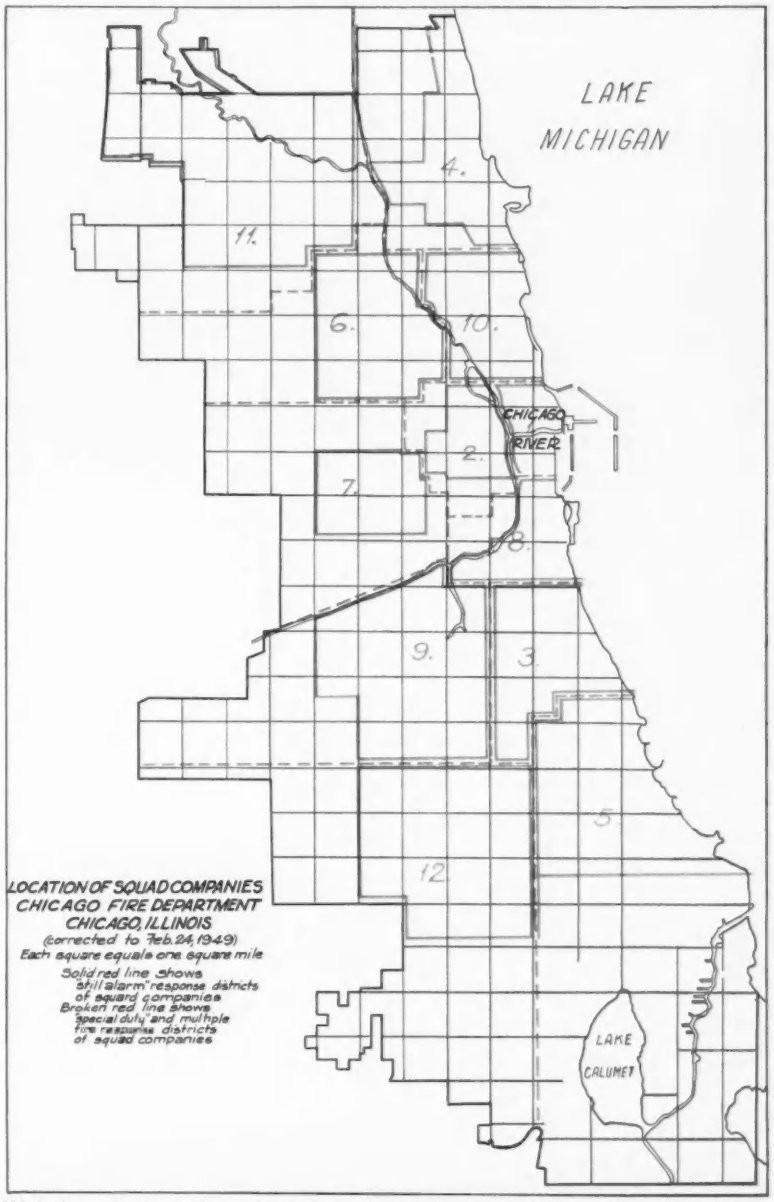
THE first meeting of the NFPA Committee on Fire Department Equipment was held at Hotel Commodore, New York City, January 31, 1949. The day was devoted to a revision of the NFPA specifications for municipal fire apparatus, including pumpers, aerial ladders and quadruple combination pumper-ladder trucks.

It is hoped to present the suggested revisions to the NFPA annual meeting in San Francisco in May for adoption, superseding the 1942 standards. It was voted that the NFPA fire apparatus specifications would be in a form that would facilitate competitive bidding by manufacturers.

In general, the revisions suggested by the committee follow recommendations of the National Board of Fire Underwriters and the International Association of Fire Chiefs. One of the more important changes suggested is the proposal to define pumpers as "Class A" and "Class B." The former would be tested for capacity at 150 pounds and the latter at 120 pounds.

Members attending meeting; left to right: R. B. Sargent, Hale Pump Co.; Chief Henry Chase, Miami, President International Association of Fire Chiefs; Chief Henry G. Thomas, Hartford, Chairman of the committee; F. X. Ahern, Deputy Fire Commissioner, Quebec; Chief G. R. McAlpine, Oklahoma City (guest); Chief John H. Alderson, Los Angeles; Percy Bugbee, NFPA General Manager; H. R. Bogardus, Chief Engineer, Fire Insurance Rating Organization of New Jersey; George L. Swan, Engineer, National Board of Fire Underwriters; Loren S. Bush, Board of Fire Underwriters of the Pacific; Chief Frank H. Burns, Grand Rapids; Warren Y. Kimball, NFPA Staff, Secretary of the Committee. Photo was taken by Hubert Walker, American-LaFrance-Foamite Corporation.

Map shows districts served by Chicago Squad Companies



With the exception of boxes located in sparsely populated sections, all box alarm assignments call for one squad each for first, second and third alarms. Where no squads are assigned on the first alarm, two respond on the second and one on the third alarm.

MAKING A GOOD JOB OF IT

BY WARREN Y. KIMBALL

Reach of Aerial Ladders

THE most costly single piece of mobile equipment owned by many fire departments is the aerial ladder truck. In American practice, these trucks are commonly manufactured with power operated ladders in sizes of 65, 75, 85, and 100 ft., measured with aerial ladders fully extended vertically.

While in general, ladder trucks with any size of aerial carry the same load of portable ladders (about 212 ft.) and accessories, the longer aerials may employ heavier chassis and turntable construction and cost somewhat more than smaller or "junior" aerials.

When buying a ladder truck it should be realized that barring accident, the truck will be in service for twenty to twenty-five years. A difference of several thousand dollars initial cost should be considered in light of the anticipated life. For example, an added initial expense of $5,000, while a considerable sum in an initial appropriation, actually adds but $200 a year to the cost of a truck designed for 25 years of service and $250 a year for a truck with 20 years of life expectancy.

Thus where apparatus of good quality is purchased on a well-planned replacement program it is well to make certain that the truck is adequately designed and equipped to meet the needs of the community for at least 20 years.

One of the questions asked most frequently when an appropriation is requested for an aerial ladder is: "Why do you need such a long ladder?"

It is relatively easy to explain that one or two men can operate 65 to 100 ft. power operated ladders where five to seven men are required for 45 to 55 ft. manually raised extension ladders. Also that the power ladder releases firemen for other work and in addition provides a more securely placed ladder and one which can be equipped with a ladder pipe. It is not so easy, however, to point out the need for a 75 ft. aerial in place of a 65 ft. job in districts where buildings are seldom over four or five stories high, or for the 100 ft. aerial in high value districts where the old 85 ft. wooden "stick" was standard equipment.

The answer to these questions lies in the "reach" of an aerial as it must be operated at fires, with buildings setting at varying distances from the street, and with obstructions from parked cars, wires, poles, and other obstacles. Where the aerial must span a row of parked cars and a sidewalk of normal width the base of the ladder may be 25 or 30 ft. out from the wall of the building.

Where the buildings are set back from the sidewalk as is frequently the case with apartment structures, school, and hospital buildings, the ladder may have to span a distance of 50 to 75 ft. to reach the structure. In addition, the height of an embankment or elevation on which buildings are erected must be considered in determining necessary reach of aerial ladders.

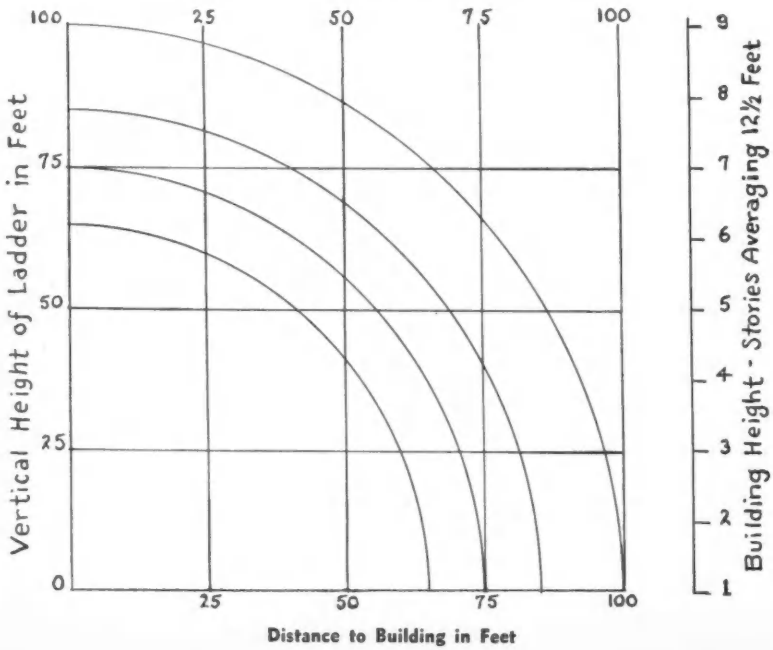
In other words before buying an aerial ladder it is well to make a survey of the buildings on which it may be used. A 100 ft. aerial can be used on a 3-story building but a 65 ft. aerial cannot reach the top of many 5 or 6-story buildings, particularly those that set back from the street. In such a survey, determine where the aerial truck may have to be placed for fire fighting operations. Next measure the distance from the base of the ladder to the building. Then establish the height that must be reached. Square each figure (the figure multiplied by itself) and add the two squares together. The square root of the sum will give the length of the ladder span required. It should be remembered that the ladder should be long enough so that several rungs will extend above the roof. Also the base of the ladder is several feet above the street so that the exact reach of the ladder must be determined by an arc from the base of the turntable rather than from the street. However, for approximate purposes, the required length of the aerial can be taken as the hypot-

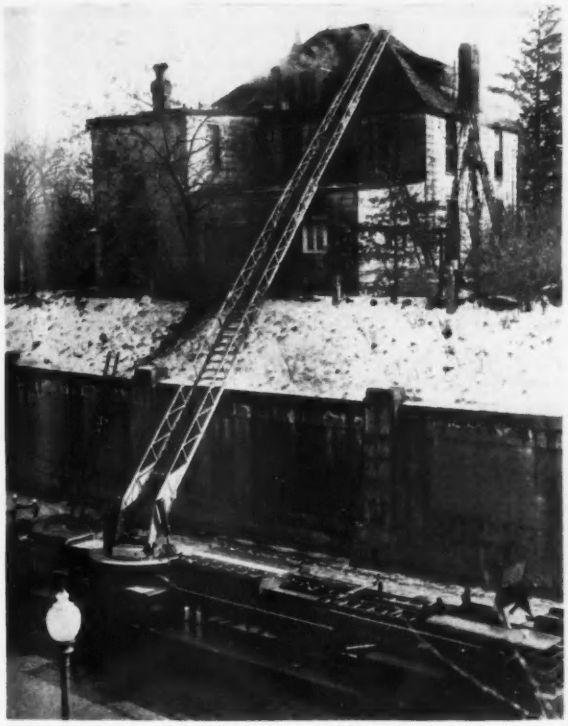
APPROXIMATE REACH OF AERIAL LADDERS

Length of Ladder Fully Extended	Distance from Base of Ladder to Building in Feet					
	20	30	40	50	60	70
100	98	95	91	85	78	68
85	82	79	74	67	57	41
75	72	68	62	53	38	—
65	61	56	49	36	—	—

In general, as shown by the chart below, the 100 ft. aerial is required to reach the 8th floor, the 85 ft. aerial for the 7th floor, the 75 ft. aerial for the 6th floor, and the 65 ft. aerial for the fifth floor. Where the ladder must give access to the roof for ventilation work (one of the most important uses of an aerial), the next larger size of ladder is required. In other words, an 85 ft. ladder may reach a 7th story window or the roof of a 6 story building which is 25 ft. from the base of the truck.

APPROXIMATE REACH OF AERIAL LADDERS





Washington Post

Height of building is not the only reason for having long ladders. Here is a 100 ft. aerial fully extended at a recent fire in a 2½ story dwelling at Washington, D. C. The high wall and banking made a situation roughly comparable to the laddering of a 5 or 6 story building set well back from the street. A long ladder can be used on a low building but a low ladder cannot top a tall structure.

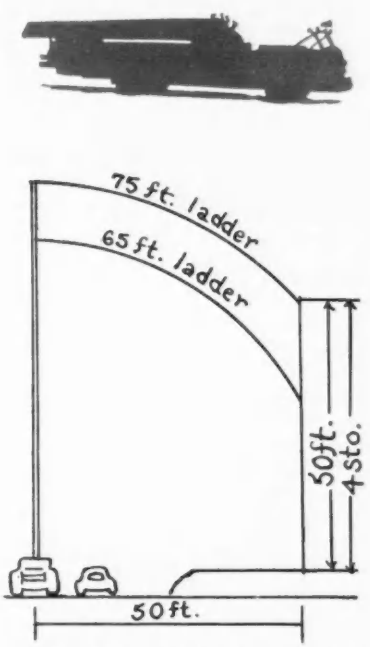
Wide World

Here is an actual rescue from the ninth floor window of a Chattanooga, Tenn. hotel, using a 100 ft. aerial which reached just above the 8th floor window. A fireman climbed into the ninth floor and lowered a woman guest to other firemen on the ladder. Flames may be seen issuing from windows at the left, as firemen take a line up a shorter aerial reaching only to the 6th floor.

enuse of a right angle triangle, the square of which equals the sum of the squares of the other two sides.

Where an existing aerial is available it would be well to include in fire company drills practice operations to determine the maximum reach in different situations, being careful not to overload the ladder when it is extended at a low angle. It is interesting by comparison to note that if a 50-ft. manual extension ladder is properly placed with the base about 10 ft. from the building, the top will reach approximately 49 ft. but a 65-ft. ladder 40 ft. from the building will also reach an elevation of approximately 49 ft.

For many years the 75-ft. wooden aerial was the smallest employed in most cities but then many ladder companies had so-called service trucks lacking a mechanically operated aerial or turntable ladder. After this the small "junior" aerial began to replace the service truck. At first these were 55-ft. wooden two-section aerials. Later the 65-ft. metal three-section ladder was developed. Now there may be good reason for making the 75-ft. aerial the smallest standard size. In fact, a number of cities are standardizing on 85 or even 100-ft. aerials throughout so that the trucks may be used in any part of the community.



Where a 4 story building is set back from the street so that the base of the aerial ladder is 50 ft. from the wall, a 75 ft. aerial is required to reach the roof particularly if the street grade is lower than the building grade as in the illustration below where the 65 ft. ladder reaches only to the third floor.

In buying an aerial ladder it is also important to get an adequate assortment of manually raised ground ladders. Many fire departments have not revised their list of fire truck ladders since the days of the "three-horse hitch" ladder truck. Certainly, 200 or better HP can handle a better balanced ladder load. It should be remembered that very often only one ladder truck is available at a fire even though there may be ten or a dozen pumpers. Each ladder truck should carry at least two ladders longer than 35 ft. so as to protect both front and rear of large buildings such as apartments, schools and churches. Some departments prefer one 50 ft. and one 40 ft. ladder. Others prefer two 45 ft. ladders. These matters should be decided by local conditions taking care to get adequate ladder coverage when buying a truck that must serve for many years.

In outlying residential districts with buildings of comparatively low height, a so-called "quadruple combination" (pumper-ladder truck) should be considered. In addition to pump and hose, such trucks carry all ladder truck equipment except the aerial ladder. It is also feasible to equip a standard pumper with a 35 to 45 ft. metal extension ladder carried in an overhead rack to supplement the usual short ladders, on pumpers.

The Latest on Tank Trucks

By Chief John R. Holden

The following is an address delivered at the Annual Fire Fighting Conference held at Worcester, Massachusetts, during January. Chief Holden is president of the Atlantic Terminal Sales Corporation of Newington, N. H., one of the largest gasoline and oil distributors in New England. His plant fire department provides protection in Newington and surrounding towns. Chief Holden has organized twenty-five New Hampshire and Maine fire departments into an Interstate Emergency Unit. He is chairman of the New Hampshire State Fire College. His tank pumper has attracted national attention through a popular article in "Readers Digest."

IT seems every day we pick up a newspaper and read that some set of farm buildings or somebody's home has been destroyed by fire. Most always, we read that the buildings were lost due to the lack of water. Most fires are small fires at the beginning, but become large fires because not arrested in the early stages. This is particularly so in the country, and also in the outskirts of cities and large towns where the people have built homes outside of areas served by the water system. Such homes have to be protected as well as those in the cities. We have found out by hard experience that many so-called modern fire departments have not yet taken this into consideration and equipped their department with a truck to carry the water to the fire.

With this condition in mind, the speaker started a campaign to interest small communities in forming their own fire departments and in so doing to provide their departments with fire trucks which on arriving at a fire are so equipped so that they can go to work immediately and attack the fire. Everyone knows that if we can get at the average fire promptly with water or some other type of extinguishers we can stop the fire before it gains too great headway.

How many times have we seen buildings burn down where a fire department needed only a couple hundred gallons of water at the start, but before they could get set up at some brook or pond a mile or so down the road, the whole building was in flames. As a fire burns it generates heat priming the rest of the building which gets so hot that the fire cannot be stopped from then on. That same fire which could have been stopped with a couple hundred gallons of water at the start just did not wait for the firemen to get pumps set up and hose laid to their water supply, but kept right on burning.

The lack of water being the greatest handicap in most outlying areas, I started to preach the tank truck fire unit. For our own use, I rebuilt oil trucks into rural fire trucks. In so doing met with a round of opposition by some who thought that you had to have a 500 or 750 gallon per minute pumper to put out a fire. Perhaps they did not like the idea of a fire truck that was not covered with gold leaf and fancy bells. But the work that the tanks did in the Maine and New Hampshire fires of 1947 changed the minds of many chiefs, for the tank trucks were responsible for saving hundreds of thousands of dollars worth of property because they could carry their water with them. The big city pumps could also be used on these fires only because a fleet of large oil and milk transports were put to work carrying water to supply these city pumpers. At the Maine and New Hampshire fires where I was in charge, I assigned three or more tank trucks to each city pumper and they kept the pumper supplied with water.

AFTER the Maine and New Hampshire conflagrations, I was asked by so many people about tank pumpers and how they could be built that I designed a new type of tank pumper to be manufactured at a price that the small towns and communities could afford and which would provide good fire protection. The "Holden Fire Combat Unit" is designed to carry 800 gallons of water, 1600 ft. of 1½-in. hose which is enclosed in cabinets against weather, two reels, one on each side carrying 200 feet of booster hose on each reel, power take off fire pump that pumps 120 g.p.m. at 180 lbs. pressure. It also can carry 60 feet of suction hose, Indian pump cans, extension ladder, roof ladder, pike poles, axes and also carries the firemen's coats, hats, boots under cover so that they are dry when the men put them on.

This unit is not only equipped with the very latest equipment to fully utilize water in places where there are no hydrant systems, but also carries a Rockwood across-the-pump proportioner for automatically feeding wetting agents or foam liquids into the hose lines. There is also a Rockwood cellar or attic pipe, CO_2 extinguishers, wet water and liquid foam. There is also room to carry a portable pump or lighting unit.

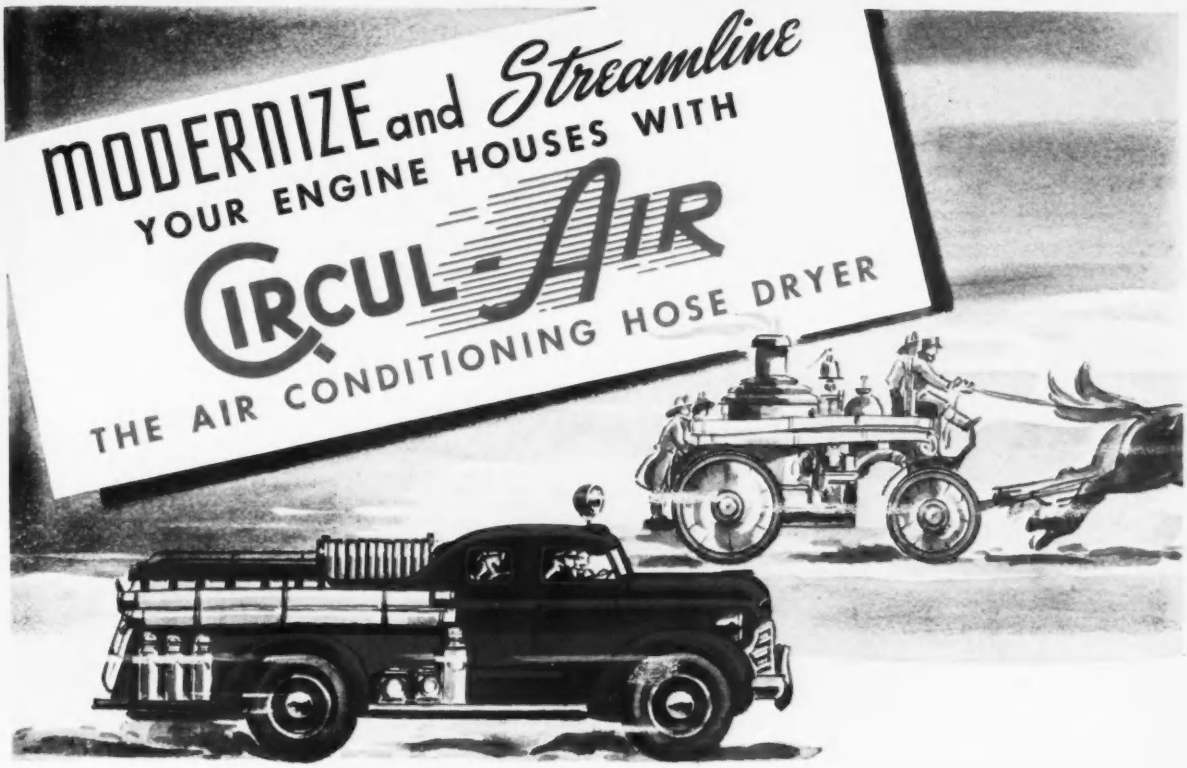
With this equipment, any department should do a fine job in stopping the average fire, whether it is in a building, grass, woods, electrical, oil or any other type. When you get to that fire with a tank pumper, you don't have to lose time looking for water to go to work.

This type of fire combat unit is surely just about as useful in cities and towns with hydrant systems. It can be used to take care of fires in the outskirts beyond the hydrant system. It can also be used to answer grass fires and other "still alarms." In cases where a city has a large fire in operation the chief can use a tank unit to wet down roofs, and protect exposures without interfering with the operation of his large pumpers. When the unit has used up its supply of 800 gallons of water, it can refill quickly outside of the fire zone and return for further service.

This unit is mobile and can be pumping a line from each side while moving along the highway. The whole country, it seems, has been waiting for something to wake them up to the fact that they can stop a tremendous loss of life and property in the rural areas. If the small towns that do not have a fire department would organize a volunteer fire department and along with other towns that do not have a tank unit, purchase a tank pumper or two, the saving of farm buildings or homes will soon convince them that when a fire breaks out in the country, it need not mean that the buildings are lost. The value of the tank pumper has been proven and it is here to stay as one of the important pieces of fire equipment.

Within the last few months I have responded to calls for help from outside cities and towns. In every case the tank units responding have had the fire completely surrounded by a water curtain while the larger capacity pumpers were getting their 2½-in. lines set up to relay from some distant water supply. Within the last month I answered a call along with other departments for help from a neighboring town that had a fire beyond their hydrant service. On arriving found that the departments

Continued on page 17



If you want the tops in hose-drying efficiency, CIRCUL-AIR is a MUST in your fire station. NO OTHER METHOD is so fast — so safe — so easy — so economical. Its many advantages are so obvious there is no longer any reason to suffer the inconvenience and drudgery of the expensive hose tower, nor the cumbersome, space-hogging, rubbish-catching hose-rack — both relics of the "horse-and-buggy" days.

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Willamette Grade School Fire
West Linn, Oregon, January 5

THE fire that destroyed the Willamette Grade School in West Linn, Oregon, at 7:50 A.M. January 5, presented several lessons of interest. According to information from the State Fire Marshal's Department, the janitor, alone in the building, apparently sounded the local alarm siren but failed to telephone to the fire department and failed to use hose or first aid fire equipment, although he remained in the fire area until nearly trapped. The West Linn Fire Department consists of three volunteer companies. These are the Willamette No. 1 with two trucks, the Bolton No. 2 with two trucks, and the Sunset No. 3. Fire department radio communications are maintained with the Oregon City Fire Department which sent a pumper. The Clackamas County rural fire truck housed by the Oregon City department, also responded, making a total of seven pieces of apparatus at the fire.

In addition to the delayed alarm the fire departments had other handicaps. The school building was built without fire walls to subdivide the large area and the fire swept from the gymnasium into the main building with great rapidity. The hydrants near the school were on 4-in. mains which while they provided an initial static pressure of 100 lbs. could not possibly provide the quantities of water needed for a large fire. Thus it was necessary to lay lines a distance of two city blocks to the nearest hydrants on an 8-in. main. When pumpers began drawing from the larger main the direct hydrant streams from the smaller mains became of little value.

There was no ladder truck responding. Pumpers at the fire consisted of three 500 gpm capacity, one 300 gpm capacity, two 200 gpm capacity, and a rural tank truck with a 150 gpm booster pump. In all there were seven 1½-in. lines and three 2½-in. lines attacking the fire from four sides of the structure.

THIS fire is an excellent example of the importance of advance tactical planning for handling school and church fires and other target hazards. Such planning should include flow tests from the group of hydrants that will be used in event of fire. (See March 1949 FIREMEN, page 9.)

Here are some suggestions that should help in event of a fire such as this school fire:

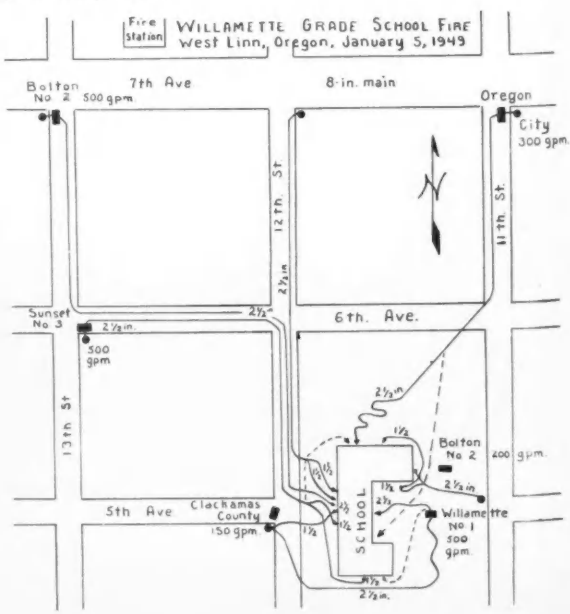
1. Know the limitations of hydrants on 4-in. mains, regardless of high initial pressures. (In general, not over one 2½-in. line can be supplied.)

Rear of building showing fire extending from the gymnasium to the main building (at left) in the absence of a fire wall. There appears to have been no attempt to open up the roof ahead of the fire. This should have been done near the junction of the two sections. Heavy streams should have been concentrated at this point from both front and rear using the largest possible tips consistent with available water supply and pumper capacity. Such streams should have covered each floor from basement to attic. As the gymnasium was beyond saving, all lines should have been concentrated where they could cool the portion of the main structure most seriously endangered.

View of north side of gymnasium before the roof collapsed showing ineffectiveness of small hand lines which included several 1½-in. lines supplied by hydrant pressure. A 2½-in. line from Oregon City pumper is shown being taken in doorway in an attempt to head off the fire.

2. Place the largest pumpers on hydrants on the largest available mains, keeping as near the fire as possible.
3. Except for protecting exposures, do not disperse available water with 1½-in. lines which cannot cool a large body of fire.
4. Large fires call for heavy streams. Try to use at least 1⅛-in. tips (250 gpm) on hand lines. Only reduce to 1-in. tip (200 gpm) where necessary. Deluge sets or siamesed streams are desirable. A few strong streams would have been preferable to many weak ones.
5. Employ pumper relays from pumpers on large mains to pumpers near the fire. Use two 2½-in. lines to supply a 500 gpm or larger pump. Where used, 3 or 3½-in. hose reduces friction loss.
6. Keep the lines as short as possible except where using pumper relays.
7. Do not attempt to supply more streams than the pumpers and water supply can service.

Firemen who study the diagram of the Willamette school fire with the advantage of hind-sight, might suggest that Bolton No. 2 might have connected at 7th Ave. and 12th St. and supplied two 2½-in. lines. This should have given Sunset No. 3 a better supply. Willamette No. 1 should have pumped from the hydrant at the rear of the fire. No tips of less than 1-in. diameter should be used on a fire of this size except to protect exposures.



Nine Died in This Small Tenement

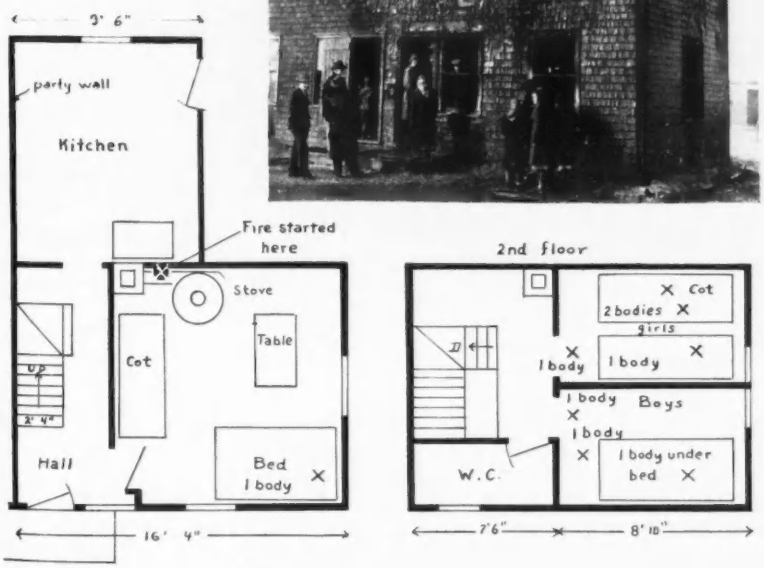
FIRE Marshal S. S. Wright of Nova Scotia (member NFPA) reports a tragic occurrence of fire which cost the lives of nine persons in a small two-family house occupied by families of miners in New Waterford, Nova Scotia. The house was of light frame construction about thirty years old with light studdings and interior partitions covered on both sides by pressed pulp. There was an ill-fitting smoke pipe, insufficient clearance between stove and smoke pipes and the wood frame partition covering.

At 5 A.M. the woman whose family occupied the north side of the house filled the stove in the front room with soft coal, left the door open a couple of inches, opened the draft, and then went into the kitchen and built a fire in the kitchen stove. While she was there, fire broke through the wood pulp partition and she ran to the front room to wake her husband. They escaped with a two-year-old child but the spread of the flames was so instantaneous that six children upstairs and another downstairs were trapped and killed. At the same time a man and his daughter living in the other side of the house were also killed.

This man's ten-year-old son was leading his two sisters down the stairs when the younger broke away, ran back upstairs and was lost.

The fire was definitely caused by an overheated stove which had been set up too close to the partition. While the alarm for this fire was delayed, the victims would have been killed long before the firemen arrived, in any case. The fire department responded with a pumper and ladder truck and extinguished the fire with two 2½-in. lines.

Right: View of house where nine died in Nova Scotia fire. Below: Diagram of the half of house in which fire started.

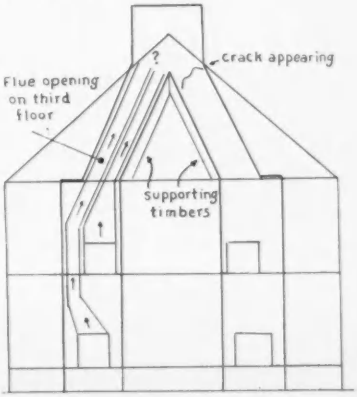


This Chimney Not to Blame

DR. JAMES P. SWING, Cambridge, Maryland, member Executive Committee, Maryland State Firemen's Association reports an interesting rural fire in Talbot County on January 5th. Fire companies responding were: Hillsboro Volunteer Fire Company from Queen Anne, 7 miles; Cordova Volunteer Firemen's Association from Cordova, 12 miles; and Goodwill Fire Company of Centerville, 14 miles. The only water was that carried on the trucks but firemen succeeded in saving nearby buildings. However, the only portion remaining of the more than 100-year-old house was the unusual chimney shown in the photo and diagram by Dr. Swing.

The cause of the fire is unknown. The chimney was not to blame as flames were discovered in the other end of the building. After the fire the only damage apparent to the chimney was that one section was leaning outward and a crack was visible at the top near where the two sections join.

Dr. Swing points out that this type of chimney construction while now unusual and different from modern design was not uncommon in its day and is an evidence of clever craftsmanship. However, no part of a brick chimney should be supported by timbers.



Eleven Die in Rural Dwelling Fire at Lakewood, Michigan

A MOTHER, her nine children and a male roomer were burned to death in a rural home while the mother was preparing breakfast on March 3. It is believed that the woman poured gasoline or kerosene on hot coals to kindle the fire. The fire occurred in the resort community of Lakewood, twelve miles north of Muskegon. An older son escaped with clothing aflame and is in critical condition. Most of the younger children from three to fifteen years of age, died in their sleep. Three other children were not at home. The father reportedly lives in Grand Rapids.

Firemen and deputy sheriffs found the bodies in the ruins as there was no chance to save the occupants as fire quickly enveloped the frame home. The flimsy one-story structure was a summer cottage of two rooms with screened porch. A neighbor's child ran two blocks to give an alarm but the building was gone when firemen arrived.

Membership Report

THIS is your Association. You can help the NFPA finish the fiscal year ending April 30, with the largest membership in our history by three simple steps:

1. See that your own fire department renews its membership promptly when renewal notices are received. Fire company memberships run for a year from the date of enrollment in the Association.
2. Recommend membership in the NFPA Volunteer Fire Company Section to any volunteer fire company, volunteer fire department, or industrial fire brigade that you think may be interested.
3. Recommend NFPA associate membership to any individual, firm, or corporation that you feel should be interested in fire protection and would benefit by the information contained in the publications sent to members.

The following fire departments recently were enrolled as members of the NFPA Volunteer Fire Company Section:

Antioch College Community Fire Committee, Yellow Springs, Ohio
Auxiliary Fire Brigade, Schenectady, N. Y.
Balkan Mining Co., Bovey, Minn.
Budd Lake Vol. Fire Dept., Budd Lake, N. J.
Effingham Vol. Fire Dept., Effingham, Ill.
Emerson Electric Mfg. Co., St. Louis, Mo.
Essex Fire Co. No. 1, Essex, Conn.
Fairfields Vol. Fire Dept., Reedville, Va.
Haworth Fire Co., Haworth, N. J.
Hudson Fire Dept., Hudson, Ohio
A. V. Roe Fire, Toronto, Ont.
Lucky Lake Fire Dept., Lucky Lake, Sask.
Mossbank Fire Dept. Mossbank, Sask.
Kirbyville Vol. Fire Dept., Kerbyville, Texas
Lacey Vol. Fire Dept., Lacey, Wash.
Lansing Vol. Fire Dept., Lansing, Ill.
Lower Milford Twp. Fire Co., Limeport, Pa.
Oregon Vol. Fire Dept., Oregon, Wis.
Fire Dept., West St. Paul, Minn.
Pierce County Fire Prot. Dist. No. 4, Tacoma, Wash.
Village of Ridgefield Park Fire Dept., Ridgefield Park, N. J.
Suburban Rural Fire Protection Dist., Klamath Falls, Ore.
Third Alarm Association, Inc., New York City, N. Y.

WE are pleased to welcome the International Association of Fire Chiefs as an organization member of the NFPA. Membership in the NFPA was unanimously approved by the IAFC Board of Directors at their meeting in New York on February 3. The IAFC Directors also appointed a committee on cooperation with other fire service organizations including the NFPA and National Board of Fire Underwriters.

VOLUNTEER FIRE COMPANY SECTION MEMBERSHIP

($12.50 annual dues) Eligible:

(1) all bona fide volunteer fire organizations in any community.

(2) all fire departments and companies in communities of less than 25,000 population.

(3) all industrial fire brigades.

Member companies receive ten copies of FIREMEN magazine each month, mailed to the homes of individual firemen. Beyond the ten, additional copies of FIREMEN cost $1 per year.

Volunteer Fire Company Section members receive at their headquarters, one copy of all publications sent to NFPA individual associate members.

INDIVIDUAL ASSOCIATE MEMBERSHIP

($12.50 annual dues) Eligible:

Individual fire departments, officers, firemen, and others interested in fire safety. NFPA associate members in the fire service receive: one copy of FIREMEN magazine monthly, the NFPA Quarterly, the monthly News Letter, technical standards, popular bulletins and posters.

All associate members have one vote in Association affairs.

New Fire Station No. 2, Natick, Massachusetts

THE Natick Fire Department under Chief Lyman G. Brown (member NFPA) recently opened a new fire station No. 2 in South Natick, replacing a very old station. This auxiliary station is designed to give immediate protection in the southern part of the community which is also served by pumpers and the aerial ladder responding from the central fire station. The station houses a new combination 500 gpm pumper on a Dodge chassis, with 250 gallon water tank, aluminum ladders in overhead rack, portable generator and floodlights, masks, and usual hose equipment. Five paid men are assigned to the company with two men on duty at all times. The fire station cost about $16,000.

The size of the new station was limited by the small lot available adjacent to main traffic arteries, but the building is considered ample for the purpose. In addition to apparatus room there is a watchroom, combination kitchen, a sitting room, bunkroom with 5 cots, and toilet, on the main floor. Downstairs is the heater room and recreation room.

Junior Fire Fighters at Springfield, Missouri

CHIEF J. W. Smyth of the Springfield, Missouri, Fire Department (member NFPA) sent in the above photograph of the Patton Fire Fighter Club, an organization of "junior fire fighters" sponsored by the Patton Creamery Company of Springfield. Chief Smyth reports that he can see improved results from the fire prevention activities sponsored by this group. The club meets monthly at the Kitts Auditorium to see films on fire prevention, cartoons and other films for children. Prizes are awarded and only members can attend. Boys and girls may join and advance in rank every two months up to junior fire chief. At present about 500 members are enrolled with average attendance of 200 at the meetings. An important phase of the program is a regular 15-minute radio program over station KTTS and KTTS-FM five nights a week from 5 to 5:15. It is a program about fire fighters slanted for the junior audience with fire prevention the main theme. The program is sponsored by the Patton Creamery.

Legislation Proposed to Aid Volunteer Fire Departments

REPRESENTATIVE J. Caleb Boggs of Delaware has introduced into the 81st U. S. Congress two bills designed to aid volunteer fire departments. One bill (H.R.1306) is designed to exempt from manufacturers' excise tax articles sold to fire fighting companies not organized for profit. The other (H.R. 1822) would allow deduction for income tax purposes of contributions or gifts to volunteer fire companies, many of which are supported by donations rather than by direct taxes which are deductable.

Fire companies interested in this legislation should contact their own U. S. representatives or may write to Representative Boggs, House of Representatives, Washington, D. C.

Dust Explosions

Continued from page 7

Committee of the National Fire Protection Association have been summarized in a pamphlet entitled "Fundamental Principles for the Prevention of Dust Explosions."* For the man with the hose it is sufficient to know that dust or finely divided combustible material in suspension in air at certain concentrations can produce a serious explosion, and care must be taken to prevent the formation of such dust clouds while fighting fire in dusty industries.

*Available from the National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass. 15 cents per copy.

The Latest on Tank Trucks

Continued from page 12

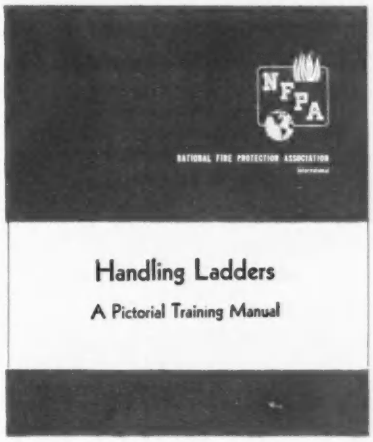
answering that call for help had 7000 gallons of water on their trucks ready to go to work with the result that the damage was very small. We carried 6000 gallons back ready for the next call. But think what could have happened to that set of buildings if we had not had adequate water to use at once. My department alone has carried as much as 54000 gallons of water to a set of farm buildings where a large barn with 250 tons of hay was burning.

A big advantage of the tank truck is the fact that the unit can drive right up to the fire and go to work even before the wheels have stopped turning, that means something, believe me.

The city or town that has good water holes for pumper suction, or some sections with a hydrant system can, by installing a front end pump on the same unit, pump 500 or 600 gpm through 2½ in. lines.

It is not implied for one minute that the standard pumping engine with its large delivery is not necessary, but that the tank unit also has a place. To me the tank unit is the answer to the "small town's prayer."

"HANDLING LADDERS"
A Pictorial Training Manual



First Manual of Joint Committee on Evolutions

For the first time three leading fire service organizations have joined to sponsor a training manual. Every fireman should have a personal copy.

Approved by:

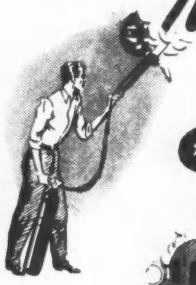
NFPA Committee on Firemen's Training
International Association of Fire Chiefs
Fire Department Instructors Conference

The Joint Committee on Evolutions first manual, "Handling Ladders" contains some 231 large photographs in its 120 pages. It is available from the NFPA executive office, 60 Batterymarch St., Boston, Mass., for $1.50 per single copy or $1.00 per copy in quantities of 10 or more.

National Fire Protection Association
60 Batterymarch Street, Boston 10, Mass.

TURN YOUR SPARE TIME INTO PROFITS!

SELL *Randolph* FIRE EXTINGUISHERS



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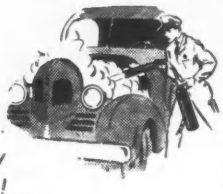

Your prospects are *unlimited* . . . every factory, farm, home, garage, laundry, boat and car needs Randolph protection.

Here's the modern extinguisher with a host of fire-fighting features. It's easy to use . . . just one trigger-touch sends snowy CO_2 deep into the fire . . . smothers it in split-seconds. Randolph is non-toxic, no damage to equipment. Does not freeze, deteriorate, or conduct electricity.

All Sizes . . . Approved By Underwriters!

Build a successful *part-time* business as a Randolph Dealer. Sell the nationally advertised Randolph Extinguishers used by leading industries everywhere. Write for your full or part-time Dealership Plan *now!* The same plan that is bringing big profits to scores of other firemen. Qualify for an *exclusive* territory by acting . . . TODAY!

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THE *New* **Beacon Ray Light**

Extra **VISIBILITY . . . from every angle**
Beacon Ray beams rotate through full 360°

Extra **STRENGTH . . .**
Beacon Ray emits two powerful signal beams (180° apart)

Extra **360° PROTECTION . . . running or parking**
Full rotation provides "area warning" regardless of vehicle position.

Federal Enterprises' new Beacon Ray Light is Extra in every respect. New through and through, this advanced design warning light is an entirely new concept in effective signalling equipment.

Your vehicle will be safer with Beacon Ray Write today for full particulars

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Plans for NFPA Annual Meeting

ADVANCE reservations indicate that there will be a large attendance at the 1949 NFPA Annual Meeting to be held at the Fairmont Hotel, San Francisco. All NFPA members and interested fire service representatives are urged to attend this first annual meeting on the West Coast since 1921.

Monday, May 16. There will be three simultaneous sessions morning and afternoon:

FIRE MARSHALS' SECTION. An all day discussion of subjects of particular interest to fire marshals, including flammable fabrics and flameproofing, fire prevention education, firemen's training by state fire marshals, developments in liquefied petroleum gas, self-service gasoline stations, control of smoking hazards.

RAILROAD SECTION. Discussion of varied railroad fire protection problems

COMMITTEE MEETINGS. Several committees and related organizations will meet during the day.

Monday evening. The first general session will be addressed by President John L. Wilds. Reports of the Board of Directors, Treasurer and General Manager will be given.

Tuesday Morning, May 17. There will be three simultaneous sessions:

ELECTRICAL SECTION. Reports of National Electrical Code Committee panels proposing changes in the National Electrical Code as transmitted by the Correlating Committee will be considered.

EXTINGUISHING AND ALARM GROUP SESSION. This includes action on committee reports, including new specifications for pumpers, ladder trucks and other fire department equipment. Extinguishing systems, tentative standards on wetting agents, and revised standards on tanks.

FIRE MARSHALS' SECTION. Discussion on arson.

Tuesday Afternoon, May 17. Three simultaneous sessions:

PUBLIC FIRE PROTECTION FORUM SESSION. Speakers will discuss current developments in public fire protection. A round table on costs of public protection will have speakers representing the points of view of taxpayers, city managers, fire departments, insurance organizations, and chambers of commerce.

ELECTRICAL SECTION. Continuation of morning program.

FIRE MARSHALS' SECTION. Continuation of morning program.

Tuesday Evening, May 17. An entertainment program is being planned for which San Francisco members will be hosts.

Wednesday Morning, May 18. Three simultaneous sessions:

PUBLIC INFORMATION GROUP SESSION. Reports will be presented on Fire Prevention Week and Clean-up Campaign, Public Relations, Fire Prevention Education in Elementary Schools, Firemen's Training, Libraries, and Museums Fire Casualty Statistics. Discussion will be encouraged.

TRANSPORTATION GROUP SESSION. Reports and discussion will cover various phases of aviation fire safety with action on standards proposed by the Committee on Aviation and Airport Fire Protection. Discussion on marine fire pro-

in San Francisco May 16-19

tection problems will include a report outlining the program of the new NFPA Marine Committee and technical papers on important subjects in this field. Committee reports and discussion will include truck transportation, transit operations and buses.

SPECIAL HAZARDS GROUP SESSION. Revisions in Standards on Prevention of Dust Explosions in Terminal Grain Elevators and Country Elevators will be presented for discussion and action. Explosion Venting, informative progress report. Magnesium, committee will present report covering storage safeguards. Spontaneous Heating — properties of new products will be discussed. Finishing Processes reports will include paint spraying and spray booths. Pyrotechnics, committee report is proposing amendment of NFPA model law to permit toy cap pistols. Air Conditioning and Blower Systems report will suggest amendment of standards.

Wednesday Afternoon, May 18. An afternoon boat excursion in San Francisco Bay to see points of interest. A demonstration of methods of controlling LP gas fires may be included.

Wednesday Evening, May 18. A motion picture program showing new technical and educational films in the field of fire protection.

Thursday Morning, May 19. Three simultaneous sessions:

FLAMMABLE LIQUIDS AND GASES GROUP SESSION. The Committee on Flammable Liquids will present recommendations for NFPA action on self-service gasoline stations and automatic gasoline nozzles. Other subjects for discussion include general features of gasoline and oil storage, dry cleaning plants, oil burning equipment, labeling of containers of flammable liquids, developments in liquefied petroleum gas installations.

INDUSTRIAL FIRE PROBLEMS GROUP SESSION. A new pamphlet on Fire Brigades presented by the Committee on Fire Brigades and Watchmen for discussion and official NFPA action; speakers on atomic hazards in fire fighting and on several special industry problems.

BUILDING CONSTRUCTION AND WAREHOUSING GROUP SESSION. The Committee on Safety to Life will present for discussion and action proposals for amendments to the Building Exits Code including new alternative methods for the protection of moving stairways, alarm systems for life safety, hospital fire safety, etc. Other subjects will include action on revised standards for Grandstands, Tents and Other Places of Outdoor Assembly, revisions in the Standards on Fur Storage, Protection Against Lightning, Storage of Combustible Fibres.

Thursday Afternoon, May 19. Will include: Ratification of Action of Group Sessions. Reports of Electrical, Fire Marshals and Railroad Sections. General interest speakers on new developments in fire protection. Election of Officers. Adjournment.

Friday, May 20. Various optional sight-seeing excursions will be available for those who remain in San Francisco.

Program for Ladies. During the meeting period, the ladies who accompany members will find interesting events planned every day.

NIP BRUSH FIRES IN THE BUD WITH A HALE FZZ PORTABLE

Fire fighters are "run ragged" during the Spring months with brush and field fires . . . and in hundreds of communities they have found a Hale FZZ Portable Pumping Unit mighty handy in putting such fires out quickly and easily. Picture shows a Hale Type FZZ Portable Pumping Unit fighting a brush fire from a moving truck. The unit can be carried on virtually any type of equipment, making it possible to fight fire while in motion, using a booster tank for source of water.

The FZZ will supply from draft, 60 U.S. Gallons per min. at 90 lbs. pump pressure; and 150 U.S. Gallons per min. at 30 lbs. It can supply two capable fire streams through 1½" lines.

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The Original MIDWESTERN Yellow Striped Safety Coat Is Again Available . . .

Here's Protection and Comfort in Your Hazardous Work of Safeguarding Life and Property Against FIRE!

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Every Midwestern product combines the thoughts and suggestions of practical Fire Chiefs and firemen from every section of the country . . . and every purchaser profits from years of Midwestern research and experience. That is why the famous Mackinaw Coat and other Midwestern clothing have embodied in their design every feature necessary for the protection and comfort of firemen.

In our vast selection of crude rubber materials you will find a type of fabric suitable for your climate and needs. The softness and flexibility in the high-grade materials used are your assurance of long time service and comfort. Many Fire Chiefs are now including Midwestern clothing in their regular yearly budget and by placing your order early you can be assured of this adequate protection when needed.

For complete information have your Midwestern dealer show you our new garments now manufactured from crude rubber compounds. A letter to the factory will also bring you material samples for your inspection.

We now have available: White, Ivory and Brown crude rubber coats for Chiefs, Assistants and other officers; also all sizes short and ¾ length felt lined Firemen's boots for immediate shipment.

NONE GENUINE WITHOUT THIS TRADE MARK

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Manufacturers of the Famous **MACKINAW Coats**

Why Should Fire Departments Drill?

By Robert F. Hamm

Director Fireman Training, Indiana Rating Bureau

"I CAN'T see any value in fire department drilling. Raising ladders and putting them down again! Dragging hose out of the bed and carrying it up ladders! Hooking up a pumper and throwing streams of water! If you ask me it is a waste of the taxpayer's money and surely a waste of the firemen's time to go through a lot of useless drilling."

Did you ever hear anything like this? Perhaps you said it. Well, it has been said either in the mild terms quoted above or with a lot more fire and brimestone. Perhaps it has been said by people who were not lazy at all, but were unmindful of the objectives of fire department training and drills.

We have all heard the soldier condemn the endless drilling in the army. However, have you noticed that those men who have been in the hell of combat do not condemn drilling very much. They have learned the objectives and have witnessed the fruit of the drills in more efficient combat, personal safety and the ability to out-fight the enemy.

Back of all drilling are three objectives whether military drilling or fire department drilling. Suppose we take a brief look at these objectives.

First of all objectives is the development of a fast and hard-hitting team composed of individuals who have been trained to accept his part of the team hitting power. We have all witnessed action at a fire scene where valuable time has been lost while the company or the department attempted to get going as a team. There was a drain on nerves and a sacrifice of energy. One would not return to see a baseball team play that showed signs of never having drilled and practiced. Perhaps the spectators would return to see the firemen in action not because they saw a demonstration of a hard-hitting team, but because of the demonstration of weakness, inefficiency and ignorance. What that does for public relations you can guess. The fire department, and the individual companies of that department that drill, will eliminate this show of weakness and will become a bitter enemy to fire because of the ability to hit hard and fast.

The second objective in fire department drill is to train men to conserve energy and not to sacrifice stamina needlessly. A poorly-drilled man will consume vast amounts of energy in useless maneuvering at a fire. On the other hand a drilled man as a part of a drilled team moves as a well-oiled, perfectly timed piece of machinery. Thus haste is unnoticed yet speed is apparent. The spectators are proud of the team for they realize they are watching a contest between fire and a professional team that moves speedily and makes every move count.

The third objective, and by no means the least important, is the ability to tackle a dangerous job with a minimum of risk to personal safety. Only through drilling can we eliminate many of the hazards to personal safety. In drills and practice sessions we have time — time to think of hazards, time to develop safe methods, time to seek ways of eliminating unsafe practices.

The best way, perhaps the only way, to break a bad habit is to replace that habit with a good habit. Under the strain and stress incidental to a fire, we revert to old habits. We do things as we have always done them. That is unless we have developed a good habit to replace the old, unsafe habit. The development of that good, safe habit is not at the scene of the fire but on the drill ground through practicing again and again.

So in summary we might answer the questions and the statement that began this analysis of drills. The reason for drills is to help men develop into hard-hitting, fast teams with the least unnecessary sacrifice of energy and personal safety. The fire department that does not drill is the one who wastes the taxpayers money and the firemen's energy.

ELEVENTH ANNUAL
PENNSYLVANIA FIRE SCHOOL
LEWISTOWN, PENNSYLVANIA
AUGUST 8 - AUGUST 12, 1949
It's A Natural For You To Attend

Small reproduction of a poster sent to all Pennsylvania volunteer fire companies.

Self-Service Gasoline Stations

THE NFPA Committee on Flammable Liquids at its meeting in New York on February 14 and 15 discussed self-service gasoline stations and plans to recommend official NFPA action on this subject at the 1949 annual meeting at San Francisco, May 16–19 (see pages 18–19). The complete text of the committee report will be published in the 1949 Advance Reports. The problem will also be discussed by the NFPA Fire Marshals Section meeting, in San Francisco.

The committee considered three general classes of self-service gasoline stations, first, the unattended type (made possible by the use of coin-operated pumps), second, the type where there is little or no effective supervision, and third, the type where there is sufficient supervision to provide reasonable assurance that gasoline pumps will not be operated by inebriated or other incompetent customers, that automobile engines will be stopped before gasoline delivery is started, that no one is smoking in the vicinity, and that gasoline is not delivered into improper containers. The committee decided that only the type should be permitted where there is effective supervision and recommends that such supervision be assured by provisions which will require an attendant to personally unlock each pump prior to the start of each gasoline delivery and prohibit him for unlocking the pump if anyone is smoking in the vicinity, if the engine is left running or if the customer is intoxicated, also that the pump shall not remain unlocked except during the time that it is in actual use by a customer. This may be accomplished by removing the reset handle.

THE committee finds that many of the requirements that have been incorporated in municipal ordinances where self-service gasoline stations are permitted deal with safety features which should be applied to all gasoline stations whether or not of the self-service type. These include such features as provision for remote control to stop the gasoline pump in case of fire or other emergency, provision of suitable fire extinguishers, proper location of pumps, islands, drainage, etc., proper construction of service station buildings, provisions for disposal of crank case drainings, and like features. The committee further recommends that self-service gasoline stations should require a special license issued by the fire department or other local authority in addition to the ordinary license for gasoline storage in order to facilitate effective control.

On the subject of so-called automatic nozzles designed to close automatically

when the automobile gasoline tank is full, the committee recommends that these not be required as a condition of approval of dispensing devices for self-service stations. The committee finds that many operators are attaching latching devices to hold such nozzles in the open position and recommends that the use of any device which permits the dispensing of gasoline when the hand of the operator is removed from the nozzle control lever be forbidden. This applies to all gasoline stations, including those of the conventional type.

WEAR YOUR FIRE HELMET

FIRE SCHOOL PLANS

Indiana. The Fifth Annual Seminar and Training Course in Arson Detection and Investigation will be conducted at Purdue University, Lafayette, Indiana, May 23–27. An interesting program has been prepared covering: What Constitutes Arson?, Coordination of Efforts and Interests in Arson Cases, Fundamentals of Effective Arson Investigation, Procedural Considerations at the Fire Scene, Scientific Aids to the Arson Investigator, Consideration of Case Histories, Questioning of Witnesses and Informants, Interrogation of Suspects, Handling Anticipated Fires, Forensic Psychiatry in Arson Cases, The Juvenile in Arson Cases, Medicolegal Examination of Burned Bodies, and Successful Investigation or Fiasco. Advance registration is necessary. Inquiries should be directed to Course Director, Public Safety Institute, Purdue University, Lafayette, Indiana.

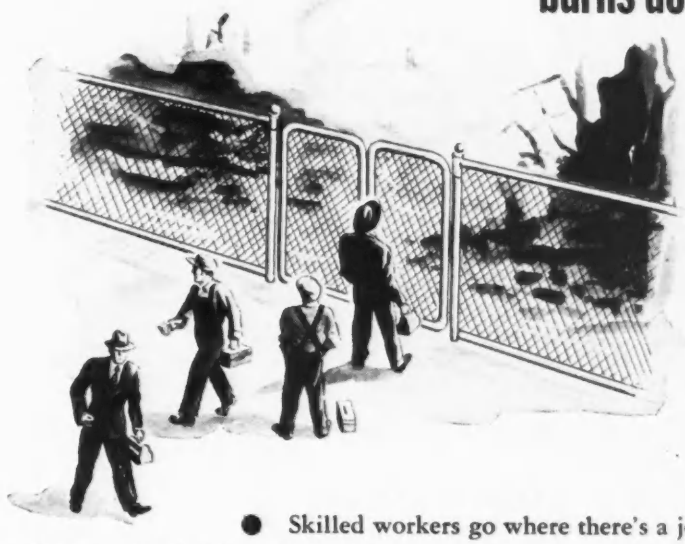
Iowa. Twenty-fifth annual Fire School, Iowa State College, May 17–20. As this is the "Silver Anniverary" of the Iowa Fire School, special efforts are being made to have a program that will be long remembered. Each morning session will open with a panel devoted to a problem of timely interest. After lunch each day there will be a general assembly addressed by some outstanding speaker. The balance of the time will be devoted to group sessions as follows: Group A — Administration for officers; Group B — Fire Prevention; Group C — Fire Fighting Tactics; Group D — General Firemanship. Each group will have six sessions devoted to problems and activities or special interest to that group.

Minnesota. The Northwest Fire School will be held at St. Paul, May 4–6.

Acknowledgment

CHIEF Frank S. Sandeman, of Long Beach, calls attention to the fact that the inspection plan followed by that department and reported in FIREMEN magazine for February, page 7, was conceived by Battalion Chief Maurice M. Clement to whom credit is due.

SKILLED WORKERS WON'T WAIT... if your plant burns down



● Skilled workers go where there's a job and a pay check. Don't let a fire destroy your plant and force them to seek other employment. The rebuilding of a competent staff can cost you plenty . . . ask your personnel manager.

Safeguard your investment in skilled labor, materials, equipment and buildings by installing modern C-O-Two Fire Protection Equipment. The new C-O-Two Combination Smoke Detecting and Fire Extinguishing System is a 24 hour a day automatic fire watchman. The first whiff of smoke in a protected area sounds an alarm. Then fast, clean, non-damaging carbon dioxide blankets the fire, putting it out in seconds, before it spreads and causes extensive damage.

Whether your fire protection problem is a store, factory, ship or power plant, an expert C-O-Two Fire Protection Engineer can help you plan and install adequate fire protection equipment. Write us today for complete information. Remember fire doesn't wait . . . act now!

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Sales and Service in the Principal Cities of United States and Canada
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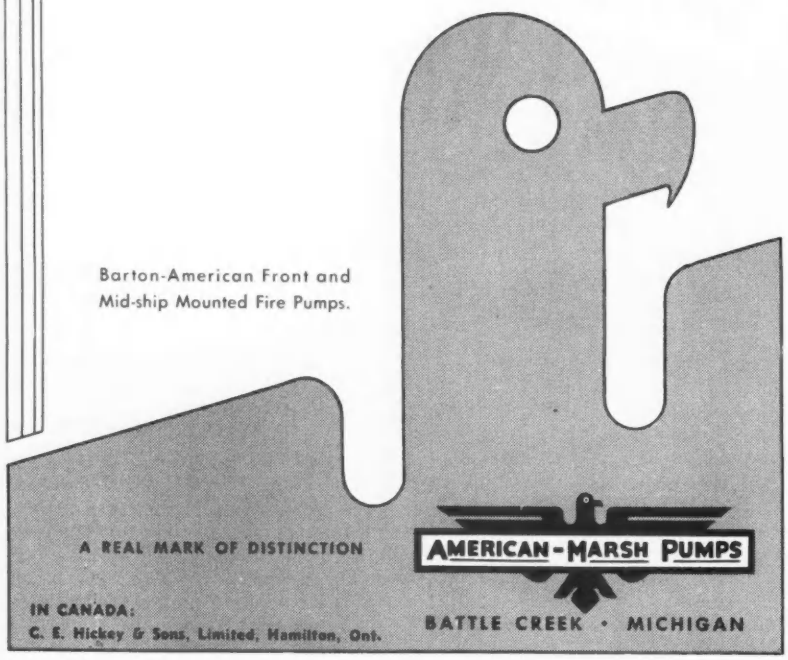

Barton-American Front and Mid-ship Mounted Fire Pumps.

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NFPA
Handbook of Fire Protection

First printing of 10,000 copies exhausted.

Regular Price $9.50

$7.00 to NFPA Members this month only!

"Churches are Burning"

This two color 40-page pamphlet has been prepared by the NFPA to guide church officials and others charged with the duty of protecting churches from fire. Price $1.00.

★

"Protecting Our Heritage"

This attractive 30-page pamphlet stresses the use of automatic protection and fire detection systems for libraries, museums and historic buildings. It is written for people interested in safeguarding valuable manuscripts, books, and irreplacable art objects. Price 50c.

Ask for free "Story" listing hundreds of fire protection publications available from NFPA.

National Fire Protection Association
60 Batterymarch Street, Boston 10, Mass.

Automatic Vaporizing Liquid Extinguishers

THE NFPA has no standards for the installation of automatic vaporizing liquid extinguishers using carbon tetrachloride, chlorobromomethane or similar extinguishing agents. The automatic application of such extinguishing agents, particularly in occupied buildings, presents problems quite different from those involved in the normal use of vaporizing liquid extinguishers which are recognized in NFPA Standards. We now have a committee on vaporizing liquid extinguishing methods which is investigating these problems and expects to report thereon in due course.

Recently, Underwriters' Laboratories has listed an automatic extinguishing device in this class, and NFPA members are making inquiries about it. The extinguishing agent is chlorobromomethane (for further information on toxic and other properties, see NFPA *Quarterly*, July 1948, page 46 and Underwriters' Laboratories' Bulletin of Research No. 42). This "new miracle fire extinguisher fluid" (manufacturer's news release) is expelled by the pressure of carbon dioxide, through an automatic sprinkler which is operated by the heat of the fire.

Underwriters' Laboratories in their report on this device (copies available from the Laboratories or from the manufacturer without charge on request) state that "fire tests demonstrated that a measure of fire control is afforded by this device when installed according to certain specifications." The report also states that "these units cannot be expected to afford protection equivalent to a properly installed and maintained automatic sprinkler system," and that they are not a substitute for an automatic carbon dioxide fire extinguishing system. The Laboratories state that these units should be installed only where the following factors govern:

(*a*) This device should be spaced on the basis of at least one unit for each 700 cu. ft. of volume with closer spacing of units where considered advisable for special reasons.

(*b*) It should be spaced so that floor area will not exceed 64 sq. ft. for each unit, distance to other units will be approximately 8 ft. on centers, and distance to any wall or partition extending to the ceiling will preferably not exceed 4 ft.

(*c*) This method of protection should be limited to rooms not exceeding 2100 cu. ft. in volume and having a floor area not exceeding 192 sq. ft. These limits are established by actual test data.

(*d*) This method of protection is primarily adaptable for reasonably tight enclosures and where means for automatic closure of ventilating openings may be employed.

(*e*) The unit is intended primarily for protection where a freely burning fire may be expected.

(*f*) Although a measure of control is afforded on slow-burning fires, it is not expected that deep seated fires involving glowing embers (Class A fires) will be completely extinguished. Reserve protection should be provided for clean-up purposes in extinguishing any remaining glowing material. Such reserve may consist of small hose, pump tanks, soda-acid extinguishers, etc.

(*g*) In places not employing regular watch service, automatic fire alarms should be provided with installations in spaces where the vapors may not be completely confined.

(*h*) Not to be used in sleeping rooms; nor in other occupied spaces unless facilities for prompt exit are provided.

(*i*) Local authorities having jurisdiction should be consulted as to acceptability for particular hazards and requirements covering installation.

Another make of automatic vaporizing liquid extinguisher in which carbon tetrachloride is expelled through a sprinkler by pressure generated by heating ammonia was formerly listed by Underwriters' Laboratories and also approved by the Factory Mutual Laboratories, but is not currently approved by either laboratory. There are also various other automatic carbon tetrachloride extinguishing devices on the market, but none have been approved.

●

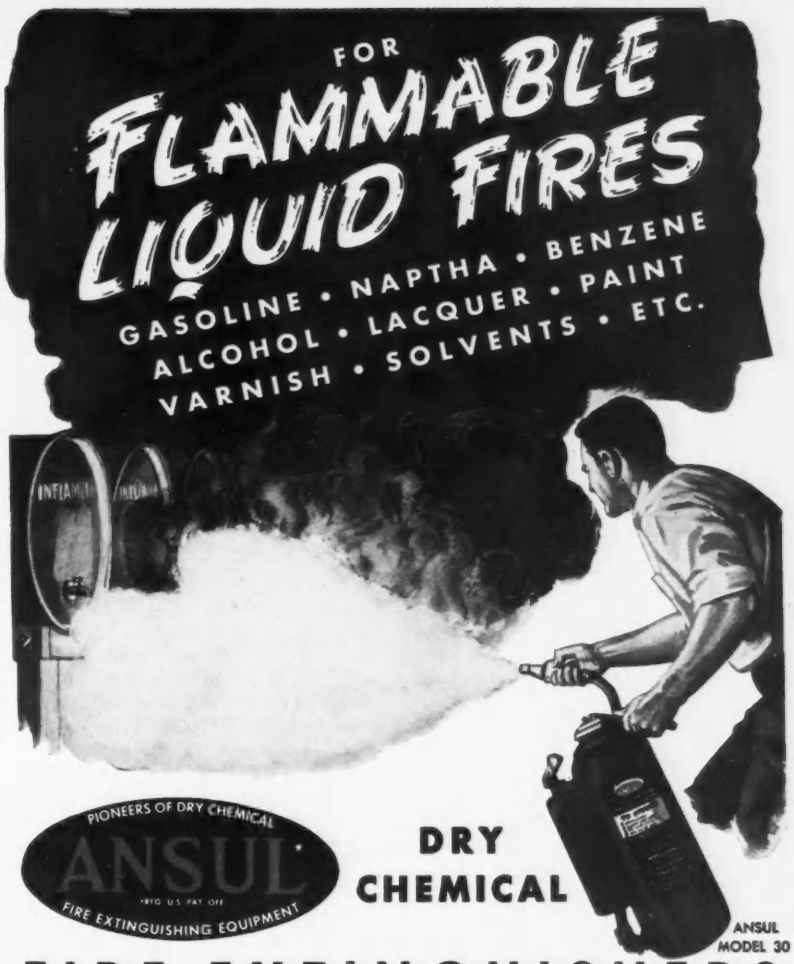
Last Chance for Reduced Price on NFPA Handbook

THE tenth edition of the 1544-page NFPA Handbook of Fire Protection (Crosby-Fiske-Forster) is proving very popular. Since the book came off the press in April 1948, the entire first printing of 10,000 copies has been distributed and a second printing has been made from the same plates.

In accordance with our usual policy of offering NFPA members special reduced prices for new books when we first announced the Handbook to our members a year ago, we made a special prepublication offer to members of $7 per copy.

We have continued this reduced price to members for a year in order to give every member ample opportunity to take advantage of the saving. We now find it necessary to discontinue this special offer and after May 1, copies will be available only at the regular price of $9.50 for single copies (quantity discounts not changed). Orders at the $7 price in conformity with the terms of the original offer to members will be accepted when post marked up to midnight on May 1. There is no limit to the number of copies that an individual or fire company member may secure for his own use or for associates or employees.

If any member fire company does not have this big new Handbook in their library they should order their copy at once.



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ANSUL
REG U.S. PAT. OFF.
FIRE EXTINGUISHING EQUIPMENT

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ANSUL MODEL 30

FIRE EXTINGUISHERS ARE YOUR *BEST* PROTECTION

...and most economical, too! Tests conducted by impartial, nationally recognized approval laboratories have proved the superiority of Ansul Dry Chemical Fire Extinguishers on *Flammable Liquid Fires.*

In addition, Ansul Fire Extinguishers provide greater safety for the operator. The stream of Ansul Dry Chemical forms a protective screen safeguarding him against radiant heat.

More and more industrial plants, transportation companies, oil companies, etc. are switching to Ansul Extinguishers as their first line of fire defense. There is a reason.

Get the facts. Send for your copy of File No. 405. You'll also receive our latest literature together with comparative rating charts for the various types of fire extinguishers.

- Safe for use on electrical fires, tool (even high voltages are not conducted by dry chemical stream.
- Can be recharged at scene of fire furnishing continuing protection.
- Annual recharging is not necessary. Low maintenance costs.
- Longer range stream of dry chemical is effective in winds and drafts.
- Ansul Dry Chemical is non-abrasive, non-corrosive, non-toxic.
- Listed and Approved by Underwriters' Laboratories and Factory Mutual Laboratories.

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FIRE EXTINGUISHER DIVISION, MARINETTE, WISCONSIN
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and in two styles as shown

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Made of finest quality heavy weight banner material, interlined with sateen back; standard size, 40″ x 60″, in any standard color desired; lettering and design embroidered or painted; polished pole and cross-bar, with solid brass fittings and ornament; base, carrying belt and waterproof cover included; available also in other sizes.

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Firemen Cautioned on Handling of Broken Fluorescent Lamp Tubes

AS it is not uncommon for firemen at fires to encounter broken or burned out fluorescent lamp tubes it is important to know that the handling and disposal of these tubes may introduce a health hazard. The following information is digested from a safety bulletin issued by the National Safety Council.

Possible hazards in order of severity are given as:

1. The dust of beryllium compounds with which the tubes are coated may be inhaled.
2. Cuts or scratches from the broken tubes may retain some of the beryllium compounds.
3. Mercury vapor (tubes contain some free mercury) may be inhaled.

The bulletin describes special methods that may be employed where large numbers of tubes must be broken and disposed of, but states that "smaller users of lamps can place the tubes in a weighted burlap bag, immersed in water in a trough or shallow tank, where they can be broken with a crowbar or length of pipe. The wet bag unopened is then removed and dumped.

"In the open air where phosphor dust and mercury vapor will be quickly dispersed by air currents, the tubes may be broken individually in their cardboard jackets by a crowbar or length of pipe. The operator should stand to windward and wear goggles and heavy canvas or leather gauntlets.

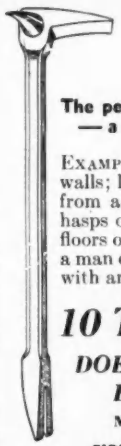
"Disposal in incinerators is not recommended. Although the tubes are under vacuum and implode when broken, once in a while one will explode. In any method of dry breaking or in handling wet broken glass, heavy gauntlets and goggles should be worn.

"It is very important that cuts from the coated glass be seen at once by a physician. Experience has shown that even a small amount of the powder remaining in a minor wound may delay healing and cause excessive growth in the scar."

Assistant Manager A. M. Baltzer of the Safety Council writes: "It is not likely that firemen would be troubled by the dust inside broken tubes because the water used in extinguishing the fire would probably wash the dust away. However, if dust is encountered when handling broken tubes the men can wear dust-type respirators approved by the U. S. Bureau of Mines. Of course, the usual warning regarding the danger of cuts is necessary.

The National Safety Council plans to accumulate additional information and will publish additional data within a few months.

THE HALLIGAN TOOL



The perfect tool for fire service — a priceless tool at a fire.

EXAMPLE: The hook takes side walls; low ceilings; high ceilings from a chair or table; removes hasps or locks; drains, takes up floors or tin-covered roofs before a man could take a second swing with an axe, etc., etc., etc.

10 Tools in One!

DOES EVERYTHING EVERYWHERE

Made from One Piece!

8½ lbs. PAT. PENDING

FIRE APPARATUS ROLLING WITHOUT THIS ALL-PURPOSE TOOL CHEATS THE CITIZENS, THE FIRE CHIEF, & THE FIREMEN WHO DO THE WORK!

From Chief Connelly, Syracuse, N. Y.: "It is the best tool that has been introduced in the fire-fighting game in a long time. It does everything that it is purported to do, and more. We wouldn't be without it. Our trucks are equipped and as funds become available every 'Pumper in the Department' will be equipped with this tool."

HALLIGAN TOOL COMPANY

1505 Metropolitan Ave. Bronx 62, N. Y.

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BADGES
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RUBBER COATS

Manufacturers of Uniforms for over 50 years

Official Makers of Uniforms for New York City Fire and Police Departments, and Serving Other Departments From Coast to Coast.

RUSSELL UNIFORM CO.

1600 Broadway, New York 19, N. Y.

Write for Fire Dept. catalog **H-57**

CHAMPION Portable Fire Pumpers

Weight only
225 Pounds

Check CHAMPION *Performance Before You Buy*

300 GPM @ 85 lbs. pressure
225 GPM @ 120 lbs. pressure
150 GPM @ 145 lbs. pressure
100 GPM @ 180 lbs. pressure

PUMP — Centrifugal type, with phosphor bronze impeller. Built to the exacting standards of the big Underwriter Champions. Bolted direct to the engine to assure perfect alignment for long trouble-free service. Automatic Vacuum Primer, Underwriter approved type.

ENGINE — 26 horsepower, 4 cylinder, water cooled. Stamina and long life to match the pumps they power. Sturdy and rugged construction qualify them as heavy duty engines for fire service. Ample power for full pumping load.

AUXILIARY MOTOR COOLING — The pump delivers a constant supply of water to cool the engine and prevent overheating even when under continuous load for days and weeks. Non-clogging strainer protects engine cooling system from foreign matter.

GAUGE — Combination pressure and vacuum type.

WEIGHT — Only 225 lbs. Less than one lb. weight per capacity gallon.

DIMENSIONS — Width 19¼". Height 27". Length 50" with carrying handles or 38" with handles removed.

Two Quick Action Quarter Turn Discharge Valves threaded for 2½ or 1½" hose. Suction inlet 2½".

CARRY A PORTABLE PUMPER ON YOUR RURAL FIRE TRUCK

Use the Portable Pumper at water sources inaccessible to your truck. With the Portable Pumper operating in tandem with the pump on your truck you can pump through thousands of feet of hose. The Portable Pumper supplies water to the truck pump which boosts the pressure and relays the water to the fire for effective streams.

W. S. DARLEY & CO. Established 1908 Chicago 12, Ill.

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Will not spill in ANY position

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MANUFACTURERS' ANNOUNCEMENTS

Fyr-Fyter Announces New Extinguisher

TWO new fire extinguishers have been announced by the Fyr-Fyter Co., of Dayton, Ohio. Approved by Underwriters Laboratories, stainless steel has been used in place of copper for both the 2½-gallon soda-acid type and the 2½-

gallon foam type, making, it is claimed by the manufacturer, the extinguisher 5 lbs. lighter, giving extra strength, greater resistance to denting and rough handling, a polished surface that retains luster longer, and lower production costs which are reflected in lower retail costs. They are known as the Silver-lite 500 series.

Carpenter Announces New Catalog

A NEW 10-page catalog has been recently mailed to all fire departments in the United States and Canada by the Carpenter Mfg. Co. of Boston 45, Somerville, Mass., manufacturers of the "Master-Light." This attractive 2-color catalog contains a special offer available until April 15th. For all orders over $100, one No. 166 red flashing light will be included free and in orders of $150 or more, one No. FS Portalite with battery and holder free. The catalog describes and lists prices of the emergency lighting required by fire departments, police, and other emergency crews. Included are utility searchlights and floodlights with rechargeable batteries in single head and twin head types, street and highway emergency flashing colored lights, hospital operating room emergency lights, and emergency lights for theatres and restaurants. Also included are single and two-way dry battery portable lights. If, for any reason, you have not received this catalog, write at once to the manufacturer.

Siren Device Invented by Fireman

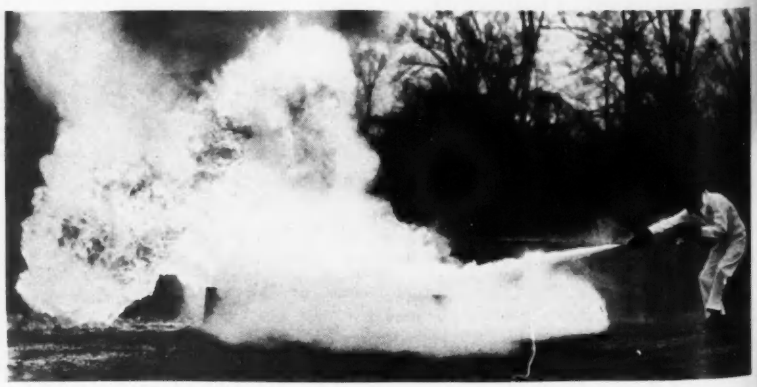
FIREMAN Donald D. Ritchey of Washington, D. C. was sufficiently impressed by the prevailence of collisions between fire apparatus where drivers did not hear the other company's siren, to do something about it. Enlisting the aid of a research organization, Fireman Ritchey has developed an attachment for fire department sirens that breaks the sound waves into short quarter-second blasts alternating with quarter-second periods of silence.

Thus the driver of a piece of apparatus has an opportunity to hear an approaching siren because his own siren is quiet half of the time even though the recognized wail of the siren is retained.

It is claimed that greater attention is obtained from the new sound pattern because the siren noise does not blend with noise from vehicle transmissions but is sharply intermittent. The motorist is not faced with the condition of noise slowly increasing in volume but is alerted by a sudden series of blasts.

Most of all, for the first time it becomes possible to range the source of the siren sound. When the full volume of sound is cut off at quarter-second intervals, there is opportunity for the echo to be heard. This helps to establish the distance and direction of sound.

The device may be attached to any standard siren without altering the action of the siren.



The American-LaFrance-Foamite Corp of Elmira, N. Y., recently announced its new Dry Chemical Fire Extinguisher and in the above photograph it is shown in action on a gasoline fire in a 32 square foot tank. Extinguishment was made in only a few seconds and was successfully repeated several times.

Build up your Fire Fighting power with

INDIAN FIRE PUMPS

ORDER NOW!

Fire Chiefs tell us the Indians "are worth their weight in gold" and they are "a one man fire department", and they "ting" agents work best in INDIANS and do not harm the tank.

Get ready for the fire season by building up your equipment with the extinguisher that gives all 'round service. The cost of INDIAN FIRE PUMPS is low, but for grass, rubbish, roof, house, partition, building and other class A fires they have no equal. Order now! You have a choice of armco zinc-grip steel tanks lined with asphaltic base paint or solid brass or chrome plated tanks.

Put the INDIAN Sign on Every Fire!

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When she observed a fire in a nearby factory in Dorchester, Massachusetts, eight year old Thomasina De Beneditto knew exactly what to do -- *So she pulled the box and called the Fire Department.* She shows, in the illustration, how she operated the box.

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GAMEWELL fire alarm boxes, promptly used when fire occurs, will save property -- and may save human lives.

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